APPENDIX A

Wholesale Support Processes and Performance Measures

In this Appendix, we examine Ameritech's wholesale support processes—the automated and manual processes required to make resale services and unbundled elements, among other items, meaningfully available to competitors—and performance measures under the criteria outlined in the Department's Evaluation regarding SBC's Section 271 Oklahoma application, filed on May 16, 1997.[1]

A. Wholesale Support Processes Overview

In evaluating BOC applications under Section 271, the Department considers whether a BOC has made resale services and unbundled elements practicably available by providing them via wholesale support processes, including the critical access to OSS functions required by the Commission's rules, that: (1) provide needed functionality; and (2) are demonstrated to operate in a reliable, nondiscriminatory manner at reasonably foreseeable volumes, providing entrants with a meaningful opportunity to compete.[2] Ameritech echos this standard in its application, and in particular with reference to OSS access: "Ameritech should be required to show that its OSS interfaces are operational, i.e., that they have undergone sufficient testing or use to provide reasonable assurance that competitors can obtain, upon request, access to the OSS functions they need to enter the marketplace and serve customers successfully at reasonably foreseeable

[1] See DOJ Oklahoma Evaluation at 26-30, Appendix A and Exhibit D (Affidavit of Michael J. Friduss).

[2] Appendix A to DOJ Oklahoma Evaluation at 68-71.

demand levels." Affidavit of Joseph A. Rogers ¶ 15 ("Rogers Aff."), attached to Ameritech Brief, Volume 2.13.

Depending on the volume of orders expected, BOCs will have to automate in two areas to make resale services and unbundled elements meaningfully available at reasonably foreseeable volumes. First, BOCs will have to automate many of the interfaces between a BOC and its competitors through which information is exchanged regarding such services and elements. Application-to-application interfaces in particular allow competing carriers to build their own software for processing transactions with a BOC. In some instances, though, such application-to-application interfaces might be too expensive for smaller carriers who cannot afford such customized software development. In those instances, terminal emulation or graphical user interfaces (GUIs) may be appropriate. SBC, for example, is developing multiple interfaces, for small and large carriers, to support almost every automated wholesale support function.[3]

Second, BOCs will need to automate, to varying degrees, the interaction of these interfaces with their internal OSSs. Such automation often will be critical to the meaningful availability of resale services and unbundled elements. The Commission's nondiscrimination requirement obligates BOCs to provide automated interaction between interfaces and OSSs where such access is automated analogously for the BOCs' retail operations, or where the lack of such automation would cause significant barriers to entry, denying competitors a meaningful opportunity to compete. Thus, while we generally concur with Ameritech's "cost-benefit"

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[3] Appendix A to DOJ Oklahoma Evaluation at 74 ("SBC claims to offer multiple interfaces through which CLECs eventually will be able to perform most functions, including resale ordering functions. This approach, when operational, may fulfill the needs of both large and small competitors and comply with the Commission's complementary "nondiscrimination" and "meaningful opportunity" requirements . . . .").

approach to determining when to mechanize order processing, as the MPSC correctly pointed out,[4] we disagree with Ameritech's position that "manual processing of certain orders, after they are received through the appropriate electronic interface, has absolutely no bearing on compliance with the checklist and the Commission's [rules]." Rogers Aff. ¶ 42. Manual processing that results in the practicable unavailability of services or elements at foreseeable demand levels can impede the development of competition, and thus obviously has a direct bearing on compliance with the competitive checklist and the Commission's rules.

In addition to automation in general, adherence to industry standards for interfaces between carriers in particular will generate further economic benefits both for CLECs and incumbents. Committees of the Alliance for Telecommunications Industry Solutions (ATIS) recently finalized standards for ordering resale services and some unbundled elements via electronic data interchange (EDI), and the Department will ordinarily expect BOCs to adhere to such standards following a reasonable period of development in cooperation with competing carriers wishing to use the standardized interface.[5]

Finally, proper performance measures with which to compare BOC retail and wholesale performance, and to measure exclusively wholesale performance, are a necessary prerequisite to demonstrating compliance with the Commission's "nondiscrimination" and "meaningful

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[4] MPSC Consultation at 24-25.

[5] ATIS noted at a recent FCC Forum on OSS access that some ATIS committee standards are usually stable enough at initial -- as opposed to final -- closure to allow carriers to begin interface development at such time. ATIS Presentation at the FCC Forum on Operations Support Systems, May 28, 1997. This indicates that in some instances BOCs should be initiating development efforts even prior to ATIS final closure in accordance with the needs of competing carriers.

opportunity to compete standards." Moreover, without a track record of performance described by comprehensive measures, it will be difficult -- if not impossible -- for competitors and regulators to detect backsliding of performance after in-region interLATA entry is authorized.

B. Ameritech's Wholesale Support Processes

Ameritech has made significant progress in improving the functionality and operability of its wholesale support processes, both manual and automated. Ameritech has generally been forthcoming about early problems with its processes, and has made good faith efforts at finding solutions to many such problems. In addition, Ameritech has attempted to place in this and in state records detailed internal testing results, carrier-to-carrier testing results, commercial performance statistics (including error rates), and, in most cases, internal retail performance results, thereby allowing competitors and regulators to examine and comment on such evidence and compare retail and wholesale performance.

Detailed comments regarding each wholesale support process Ameritech claims to provide are provided below. In each instance, we review the functions Ameritech purports to provide and the testing and operational evidence supporting such functionality. Because Ameritech's processes are generally operated on a regional, rather than state-wide basis, our analysis is not limited to Michigan activities unless there is evidence of state-specific operating problems. Similarly, if a problem exists with Ameritech's processes in another state, we assume that the problem exists in Michigan unless shown otherwise.

1. Obtaining Preordering Information for Resale Services and Unbundled Elements

Ameritech provides CLECs with manual and automated processes for obtaining preordering information. The latter is provided primarily through an EDI interface, and thus

Ameritech has generally anticipated the direction ATIS committees have taken in this regard.[6] Ameritech provides five primary preordering functions: customer service record retrieval; telephone number selection and reservation; due date selection and reservation; address validation; and feature availability. These functions appear to provide CLECs with at least the basic functionality required to provide competitive POTS services to end users. The first three functions are provided in near-real-time over the EDI interface, while the last two are provided as file downloads and are updated nightly. There is little or no evidence in the record to indicate that this division of functions between real-time and file transfer is competitively unreasonable, particularly in light of the relatively static nature of the address and feature availability data.

Ameritech's EDI preordering interface has undergone significant internal testing, and some, albeit insufficient, carrier-to-carrier testing and commercial use. First, Ameritech asserts that internal testing of the interface by Ameritech alone was completed in November and December 1996, and that the interface has been available since then. Rogers Aff. ¶ 25. Ameritech also presents the details of internal testing at the direction of Andersen Consulting personnel. By analyzing both previous Ameritech testing and current projections of preordering transactions, personnel from Andersen Consulting and Further Inspection, an information technology firm, created a set of benchmark transactions that represented the expected "mix" of preordering transactions. Affidavit of Robert H. Meixner ¶¶ 25-27 ("Meixner Aff."), attached to Ameritech Brief, Volume 2.9. Using these benchmark transactions, Ameritech and Further Inspection personnel then ran tests on the preordering system involving 906 transactions and six simultaneous users. The results are reported in Schedules 9 and 10 of Meixner's affidavit. The

[6] ATIS committees are currently developing EDI-based preordering guidelines.

reported results claim a capacity of 945 preorder transactions per hour, or 307,000 per month, well above Ameritech's projected volumes for 1997.

The results also claim an average response time for these transactions of approximately 8.2 seconds, roughly corroborated by 9.5 second response times in tests using USN's interface for retrieving CSRs. Ameritech also corroborates these results through submission of a study by Further Inspection comparing Ameritech's retail and wholesale preorder response times further broken out by state.[7] It is unclear whether the data depicted is a breakout of the tests described above or separate tests. Meixner Aff. ¶¶ 25-31. The Further Inspection bar graphs indicate that, for Michigan and most other states, wholesale preorder response times are approximately 10 seconds or less and retail response times are approximately 2-4 seconds. While there is limited evidence in the record indicating that such a difference in response time is competitively significant,[8] Ameritech does not reveal the source of the retail performance data, the conditions under which it was obtained, or the basis for its goal of providing wholesale access in 10 seconds.[9]

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[7] Apparently the PSCW did not have this comparative data at the time it closed the record for its May 29 decision rejecting Ameritech's preordering interface, as it stated that "Ameritech was not able to provide comparisons to Ameritech customer service representatives for any of the pre-ordering functions." PSCW Second Order at 19.

[8] See e.g., Affidavit of Betty L. Reeves ¶ 7 ("Reeves Aff."), attached to Sprint Petition. Mr. Connolly of AT&T points out that multiple preordering inquiries per customer will have a multiplier effect on any differences in response time. Affidavit of Timothy M. Connolly ¶ 203 ("Connolly Aff."), attached to AT&T Comments, Exhibit F.

[9] The MPSC noted Ameritech's testimony that "since Ameritech retail did not use the actual interfaces that CLECs use to access OSS, the operation of the interfaces could not be compared to Ameritech's own experience." MPSC Consultation at 26.

On cross-examination in the Illinois Corporation Commission hearings, Meixner of Andersen Consulting indicated that he had not examined a series of problem logs associated with Ameritech's EDI interface.[10] In its application, however, Ameritech reviews the preordering entries in at least one such log, indicating that none of the error entries associated with preordering functions was caused by a deficiency in Ameritech's systems. Some parties, however, assert several other reasons why Meixner's testimony, particularly regarding resale ordering, discussed below, should be discounted, including that Andersen personnel did not consult CLECs regarding their experience using the EDI interface. The Department agrees with some of these criticisms with respect to resale ordering;[11] regarding preordering, however, Andersen Consulting's personnel did consult and test with USN, the only commercial user of the preordering interface, and Ameritech indicates that its inquiries with MFS, the only other carrier to test the interface, went unanswered.

Carrier-to-carrier testing of all three EDI functions (CSR, due dates, and telephone numbers) was performed with USN in January 1997, and with MFS in April 1997. The tests with MFS consisted of 305 transactions involving all three EDI preordering functions, resulting in 44 or 14% "errors" according to Ameritech. While Ameritech indicates that these errors may have been due, at least in part, to MFS' systems, no breakout of the errors is provided, and Ameritech apparently requested feedback from MFS without response. Rogers Aff. ¶ 26.

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[10] Illinois Commerce Commission, Investigation Concerning Illinois Bell Telephone Company's Compliance with Section 271(c) of the Telecommunications Act of 1996, Docket No. 96-0404, Transcript of Proceedings, at 1777 (May 6, 1997).

[11] Perhaps the most serious deficiency, cited by AT&T, was Andersen Consulting's failure to examine the interaction of the EDI interface with Ameritech's OSSs. See Connolly Aff. ¶ 188.

Ameritech does not provide details of the USN testing, although since January USN has employed the CSR retrieval function commercially, accessing about 4,000 CSRs a week, for example, in April. It appears that no other commercial use has been made of the EDI preordering functions. The file transfer functions, however, are apparently in commercial use by several carriers. Rogers Aff. ¶¶ 27, 29.

Finally, Ameritech submits a letter from Telesphere Solutions, an interface software developer, stating that Telesphere was able to build a test interface to Ameritech's preordering interface. Rogers Aff. at Schedule 3. Telesphere now offers CLECs its software in the form of both a GUI and application-to-application interface to transact with Ameritech's EDI preordering interface. Rogers Aff. at Schedule 4.

In all, it appears that Ameritech has made significant progress with its preordering processes. Because of the relationship between due dates or telephone number reservations and ordering functions, however, further evidence that these functions will operate in a nondiscriminatory manner at increased volumes, and in conjunction with the ordering of services or elements, would provide greater assurance of their operation. While actual commercial use of these functions may not be necessary to a demonstration of their proper operation, i.e., if a BOC establishes that no CLEC is interested in using or testing the interface, experience with Ameritech's (and other carriers') EDI ordering interface suggests that it is extremely difficult to ensure such operation even with the significant testing Ameritech has conducted to date. Thus, particularly with regard to EDI-based due date and telephone number functions, further carrier-

to-carrier testing and/or commercial use appears necessary to enable Ameritech to make the necessary showing.[12]

2. Ordering and Provisioning of Resale Services

Ameritech's ordering and provisioning functions have incurred the most commercial use of Ameritech's wholesale support processes. As of its application date, Ameritech had installed over 18,000 resold lines region-wide in 1997. In addition to conventional, manual methods of ordering resale services, Ameritech provides an EDI-based ordering interface which is currently in commercial use by several carriers.[13]

Orders received by Ameritech via facsimile are manually entered into Ameritech's OSSs for processing. In contrast, orders received through the EDI interface are often processed in a fully automated fashion, requiring immediate, electronic interaction between the interface and Ameritech's OSSs. Some orders received via the EDI interface, however, are either reviewed or edited manually prior to being processed by Ameritech's OSSs.

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[12] See, e.g., Reeves Aff. ¶ 12.

[13] Well in advance of national standards for carrier-to-carrier ordering of resale services, Ameritech implemented an EDI interface to accept high volumes of such orders pursuant to the limited standards that existed at the time. Ameritech has since agreed to conform its EDI interface, within 120 days or at the latest January 1, 1998, to the new standards recently adopted by ATIS for resale ordering. Ameritech provides the most convincing evidence—commercial operation—that the interface is functioning properly. Currently AT&T, MCI, and USN, among others, are using the interface commercially, and there appears to be little dispute that the interface itself, one of the two key automated steps of providing resale services, is functioning adequately at least for communicating orders for POTS services. Further, Ameritech's performance using its current EDI interface can serve as a benchmark during its transition to an interface compliant with ATIS EDI SOSC Issue 7.0, which Ameritech has agreed to implement within 120 days of issuance.

As would be expected of a new and complex automated process, Ameritech's resale interface and back-office processes encountered some early problems. In view of these initial problems, the PSCW found that, as of April 1, 1997, Ameritech's resale ordering interfaces and processes were not operational.[14] Based on evidence available as of that date, the PSCW found that Ameritech's ordering processes were not providing predictable, reliable results, and thus were not operating at parity with its retail operations.[15]

Among the main deficiencies discussed, the PSCW pointed to late completion notifications via the EDI interface and double billing problems as a customer-affecting difficulties that required resolution. Other problems relating to the interaction of Ameritech's EDI interface and its back-office systems were cited, including the rate of manual, versus automated processing of orders received via the EDI interface. (The staff of the PSCW correlated manual processing with higher rates of order-completion delays.[16]) Since the record closing dates of this decision, Ameritech has initiated fixes for many of these problems and produced evidence that these solutions are improving performance for some such problems. As

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[14]The first Illinois HEPO, based on evidence submitted through January 16, 1997, found that Ameritech had not provided empirical evidence that its OSS were operational and functional, and Ameritech was directed to work with carriers that experienced orders that were rejected or that required manual intervention. ICC First HEPO at 28. The second HEPO found that the OSS were available and operational. ICC Second HEPO at 49-51. In his discussion of the issues raised by the parties to the proceeding, the Hearing Examiner made certain factual findings that would appear to undermine this conclusion. See following notes 16, 17, and 26.

[15] Part of the PSCW's decision may have been based only on evidence submitted through February 26, 1997. See PSCW Second Order at 18.

[16]The Illinois Hearing Examiner, in the second HEPO, found that manual intervention does "prevent Ameritech from providing these services at a quality level that is at parity with the quality that it provides these services for itself," at least for an interim period before industry standards are available. ICC Second HEPO at 49.

of Ameritech's application date, however, Ameritech had only days before put in place solutions for the double billing problem discussed below.[17]

Most recently, the MPSC found that, although Ameritech was providing access to OSS functions, the Commission could not determine whether Ameritech was providing such access in a nondiscriminatory manner or in a manner providing CLECs with a meaningful opportunity to compete. In particular, the MPSC found that Ameritech had failed to provide appropriate performance measures and associated retail and wholesale results enabling the commission to accurately determine the parity of Ameritech's retail and wholesale performance. Further, the MPSC pointed out the lack of objective standards, apart from parity determinations, with which to gauge the performance of wholesale functions.

Like the MPSC, the Department has found it extremely difficult to untangle the web of conflicting evidence surrounding Ameritech's resale processes. As we discuss below, with no common language between the participating parties to describe Ameritech's performance, and faltering performance during the last reported and highest volume month, the Department believes that Ameritech has not demonstrated the operability of its processes at this time, under these circumstances.

The most complicating factor, discussed by the MPSC and by the Department, below, is the lack of clarity in the performance results reported by Ameritech and the absence of a common language of measures and standards with which to gauge the operation of these new

[17]The second Illinois HEPO discusses double-billing as the "most serious problem relating to Ameritech's OSS" and notes that, although Ameritech appears committed to solving the problem, it has presented no statistics to support its contention that the problem is resolved. ICC Second HEPO at 50.

processes. Clarification in these areas will permit the states, the Department, and the Commission to determine whether Ameritech is satisfying its obligation to provide resale services under Sections 251 and 271. We discuss below specific examples of why such a demonstration is not made in the current application, and improvements necessary to such a demonstration.

a. Meeting Due Dates for Resale Service Installation

Providing resale services in substantially the same time as analogous retail services is probably the most fundamental parity requirement in Section 251. By definition, Ameritech provides at retail the identical services it offers CLECs for resale. The avoided-cost pricing of resale services in Section 252 assumes that the wholesale input to either the BOCs' or requesting carriers' service will be almost identical in quality to the consumer, limiting competition to retailing functions. A CLEC's ability to provide customers with resale services in the same interval or meet the same due dates as a BOC's retail operation is an essential component of such service quality. Yet, because of the complexity of interfacing with the BOC's OSSs that provision such services, parity may be difficult to provide and even more difficult to demonstrate.

For example, because Ameritech has declined to provide actual installation intervals for resale services or elements, choosing instead to emphasize the meeting of due date commitments, particular clarity is required in describing what is included in Ameritech's figures for meeting due dates. Ameritech reports that for the months of March and April, Ameritech "met" 98.3% and 97.7% of resale installation due dates region wide. These figures are comparable to those Ameritech reports for its retail operations. Were Ameritech and CLECs in agreement, or even

close to agreement, as to what these figures represented and their accuracy, a demonstration of nondiscriminatory operation would be straight forward.

In contrast to this perhaps overly optimistic scenario, legitimate controversy exists over whether Ameritech is in fact meeting due dates, and whose due dates. The due dates Ameritech purports to meet are not necessarily, for example, those requested by AT&T. There are certain criteria under which Ameritech changes the AT&T-requested due date for an order. Ameritech describes these criteria in its application, and some appear to be legitimate reasons for modification, such as orders received by Ameritech after their requested due date.[18] Other reasons that Ameritech modifies due dates, however, render the reported data useless for determining the nondiscriminatory operation of Ameritech's processes. For example, when, due to a lack of appropriate processing capacity, a backlog of orders requiring manual review occurs, the delay caused by the backlog may force Ameritech personnel to enter orders into Ameritech's systems after the originally-requested due date. That is, the orders may have arrived via the EDI interface long before the requested due date, but their actual entry into the system may be delayed beyond the due date. Under those circumstances, Ameritech modifies the due date because its systems will not accept entry of an order with a past-due date. This modification, which Ameritech does not account for in its reported data, obviously masks the very capacity problems the commenting parties, the states, the Department, and the Commission are attempting to assess. This is not to say that Ameritech has purposefully hidden this practice, but it certainly

[18] See Mickens Aff. ¶¶ 86-89.

cannot provide a basis for the Commission to find that operation of Ameritech's resale processes is nondiscriminatory.[19]

If Ameritech-changed due dates are discounted, Ameritech met due dates requested by AT&T roughly 76% of the time in April.[20] The actual measure of appropriate due dates met during this period is higher than this figure because, as is discussed above, there may be legitimate reasons for Ameritech to change requested due dates in certain instances.[21] Further, for orders placed during the week of highest volatility in April, that of April 27, Ameritech completed roughly 73% of AT&T's orders within the original, AT&T-requested due date. Again, for the reasons stated above, the actual figure is likely to be higher than 73%, but how much higher is unclear given the data Ameritech filed in its application. Obviously these figures pale in comparison to Ameritech's reported retail performance (e.g., Ameritech reports that it met 98.8% of retail due dates in April), but the comparison is one of "apples to oranges" because these wholesale and retail figures are measured dissimilarly due to the complications discussed above.

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[19] Since the filing of its application, Ameritech (jointly with AT&T) has submitted data to the Department accounting for this practice and clarifying other data. The Department, however, has not had a full opportunity to evaluate this information, and thus will comment here only on the data submitted with Ameritech's application.

[20] This figure is based on data Ameritech supplied to AT&T and relied on by AT&T in its presentations before the MPSC. Ignoring invalid AT&T requested due dates, Ameritech completed 3,958 out of 5,204 orders on time as originally requested by AT&T.

[21] See Mickens Aff. ¶¶ 86-89.

b. Manual Capacity Constraints

In April, the most critical month of commercial use prior to Ameritech's application date, and thus the most valuable month to Ameritech in proving the operation of its systems, Ameritech asserts that AT&T had dramatic order-volume swings which caused a backlog and thus a degradation in overall performance. Because a certain percentage of orders that Ameritech receives electronically are processed manually (roughly 40% for Michigan in April),[22] the dramatic increase in volume increased the number, but not the percentage of orders requiring manual processing.[23] While Ameritech's systems were able to process successfully the orders that "flowed through" electronically, Ameritech's heavy reliance on manual processing, and lack of adequate manual capacity to match the increase at the time, caused the backlog in manual processing. This backlog affected all CLECs placing orders with Ameritech, including USN.[24] Obviously, the danger of such delays and errors resulting from manual processing decreases as the percentage of orders processed electronically increases.

If Ameritech relies on manual procedures to process a significant portion of orders received via its EDI interface, the capacity of its electronic processes becomes less important

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[22] There is evidence in the record indicating that Ameritech's figures for manual processing underestimate the actual manual processing taking place. See Affidavit of Susan L. Z. Bryant ¶ 136 ("Bryant Aff."), attached to AT&T Comments, Exhibit E.

[23] In a separate instance in May, AT&T submitted ramped up volumes of orders that Ameritech could not process electronically, causing a significant increase in both the number and percentage of orders processed manually by Ameritech. This May incident, however, should not be reflected in Ameritech's figures for April.

[24] USN stated in the Michigan hearings that it had experienced "considerable backlogs" during this time frame. Michigan Public Service Commission, In the matter, on the Commission's own motion, to consider Ameritech Michigan's compliance with the competitive checklist in Section 271 of the Telecommunications Act of 1996, Case No. U-11104, Transcript of Proceedings, at 157 (May 28, 1997) ("MPSC Transcript, May 28, 1997").

than that of its manual procedures, as the events in April indicate. The manual capacity becomes the weakest link in the processing chain. Ameritech states that its capacity planning is based on "relatively stable volume increases," Mickens Aff. ¶ 88, but the competitive local marketplace, especially during the early stages of entry, may not accommodate Ameritech's expectations. Certainly, Ameritech cannot and should not build systems to anticipate every conceivable volume swing within its monthly forecasts, but given the low volume of orders involved in this incident (4,541 Michigan orders for AT&T in the last two weeks of April, representing a mere 13% of the forecasted 33,877 total orders for all CLECs region-wide that month),[25] we believe there is cause for concern and a need for additional improvement.[26]

c. Minimum Processing Intervals

Ameritech's measurement of firm order confirmation (FOC) and order reject intervals reveals additional, significant information about Ameritech's process performance. The FOC and order rejection intervals reported by Ameritech can be used as an indicator of minimum installation intervals regardless of the actual due dates requested by CLECs or established by

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[25] Because in many cases Ameritech's performance measurements do not include pending orders until they are processed, the full impact of the increase in late April will be reflected in the data for May, which was obviously incomplete at the time Ameritech filed.

[26] As noted previously, the second Illinois HEPO recognizes that extensive manual processing means that Ameritech is not providing CLECs with service quality at parity with that it provides itself. ICC Second HEPO at 49. In concluding, nonetheless, that Ameritech's OSS comply with the checklist, the HEPO finds that "[p]arity must be interpreted to mean that any quality problems are within reasonable limits," and adds that "what is reasonable today may not be reasonable in the near future. The Commission is committed to seeing exact parity in service quality in the very near future." Id. at 51 (discussing percentages of rejected CLEC orders). The Department believes that providing resale services in substantially the same time as analogous retail services is a fundamental parity requirement. Where, as here, manual intervention causes that requirement to not be met (or demonstrated), then the statute's requirement of parity has not been satisfied. See also infra Appendix B.2.c., re Minimum Processing Intervals.

Ameritech. It is the Department's understanding that, regardless of whether an order is received via facsimile or through the EDI interface, Ameritech returns a FOC or order rejection only upon the entry of such orders into an Ameritech OSS. For example, if an order is received via the EDI interface, and requires manual review or editing prior to electronic processing, the FOC or rejection will only be sent after the manual processing is completed and the order is forwarded to a particular OSS. Orders that flow through electronically, and do not require manual review, trigger an almost immediate FOC or rejection.[27] Because an order cannot be completed prior to its entry into Ameritech's systems, and the wait for a FOC or rejection indicates the time required for such entry, the time it takes Ameritech to return FOCs or rejections is an indication of the absolute minimum time Ameritech would have required to complete the order. In addition, beyond their use as barometers of performance, FOC and rejection notifications play a critical role in a CLEC's ability to keep its customer apprised of installation dates (or the changing thereof) and modify a customer's order prior to installation.

As is depicted in Schedule 22 of Mickens affidavit, the percentage of FOCs not returned to CLECs within 96 hours has increased markedly from roughly 14% in January to 45% in April. See Mickens Aff. ¶ 101. This is a troubling indication that the minimum time for Ameritech to process orders is increasing as volume has increased. Although, as Ameritech points out, the figures for April are affected by the "spikes" in volume discussed above, the trend upward began in the previous months, and because the "spikes" occurred toward the end of April, data for May

[27] See, e.g., Connolly Aff. ¶ 134.

may be impacted even more.[28] The reason this trend is not reflected in the due date discussion, above, is because AT&T's requested due dates have been sufficiently lengthy to mask the trend. In contrast to the data in Schedule 22, covering all FOCs, Schedule 25 includes FOC data for EDI only, representing primarily transactions with AT&T. The figure of 11.9% of FOCs returned in excess of 48 hours in April appears not to include the bulk of the FOCs resulting from orders placed in late April.[29] See Mickens Aff. ¶ 98. Thus, without data for May, the impact of AT&T's ramp-up cannot be discerned. Further, because only FOCs that were sent are included within this measure, those never sent due to error are not considered.

With regard to order rejections, AT&T presented evidence before the MPSC, based on Ameritech data, that average order rejections were taking upwards of almost 6 days in April, and were almost always taking longer on average than order completions.[30] Again manual processing delays are likely the cause given the immediacy of a rejection performed electronically. These delays leave CLECs in limbo vis-a-vis their (potential) customers for significant periods of time, whereas Ameritech retail representatives receive comparable notifications of order errors almost immediately.

Accordingly, as of the filing date of this application, the Department believes Ameritech has failed to demonstrate its ability to provision resale services in a nondiscriminatory manner.

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[28] Mickens Aff. ¶ 101. Ameritech, however, does not clearly indicate which FOCs are included under Schedule 22 (or 23, 24, or 25, which appear to be identical) versus Schedule 25. Schedule 22 appears to represent all FOCs, whether the result of manual or EDI-based ordering.

[29]The number of FOC transactions listed in Schedule 25 for April is less than half of the number of orders submitted by AT&T alone.

[30] CLEC Exhibit 6 submitted at Hearing on Ameritech Michigan's Operation Support Systems, MPSC Case No. U-11104 (May 28, 1997); Bryant Aff. at Attachments 21 & 22.

As is discussed above, clearer performance data are a precondition to such a demonstration, and based on the data provided, additional performance results demonstrating nondiscriminatory operation is also required.

3. Unbundled Loop Ordering

Ameritech has processed over 39,000 unbundled loops in Michigan and Illinois since 1995, over 10,000 region-wide in 1997, and roughly 8,000 via its ASR electronic interface.[31] With the exception of due dates, discussed below, Ameritech's performance with respect to unbundled loops appears to be satisfactory. For example, according to Ameritech's reported results, the trouble report rate for unbundled loop customers remained on average below that of Ameritech retail customers throughout every reported month in 1997.[32] Similarly, restoration and service outage rates for loop and retail customers generally did not appear significantly disparate on average throughout the reported months of 1997, and where disparities existed, Ameritech appears to have provided, generally speaking, reasoned explanations for the disparity or improved results since such disparate performance.

As in the case of resale services, however, Ameritech's critical performance regarding due date obligations appears controversial and unclear. Again, because of Ameritech's resistance to reporting actual installation intervals,[33] Ameritech's due date performance is crucial to its demonstration that unbundled loops are meaningfully available to competitors. The

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[31] Mickens Aff. ¶ 23, Schedules 18 and 25. Ameritech has committed to implement, within 120 days of finalization, the now-finalized ATIS EDI SOSC Issue 7.0, which includes EDI ordering guidelines for loops, switching, loops plus number portability, and loops plus switching.

[32] Mickens Aff. ¶¶ 62-63.

[33] See Subsection C to this Appendix.

controversy surrounding Ameritech's performance can be summarized by comparing Ameritech's claimed results with those reported by Brooks Fiber, Ameritech's highest volume loop customer: while Ameritech reports meeting due dates 94-98% of the time, Brooks reports due dates met only 55-63% of the time.[34]

Rather than repeat the details of the controversy between Ameritech and Brooks Fiber, fully explored in detail in the MPSC's hearings and final recommendation, we again note that without some common understanding of Ameritech's performance and the measures with which to gauge such performance, it is extremely difficult for Ameritech to demonstrate, and thus for the Commission to conclude, that Ameritech is providing unbundled loops in accordance with its obligations under Sections 251 and 271. This is not to say that the Department has concluded that Brooks' data is correct, or that a parity determination would necessarily be far off once a proper understanding of Ameritech's performance was reached. But on the basis of the record presented, in particular by Brooks Fiber and WorldCom's MFS subsidiary, and in accordance with the similar findings of two state commissions that have addressed the matter, the Department believes Ameritech has failed to make a convincing showing in this regard.

Finally, the Department shares the concerns raised by many parties regarding Ameritech's fragmented approach to automating the loop ordering and provisioning process via a combination of ASR (loop order), EDI (number portability), and facsimile (disconnect) mechanisms. Ameritech's adoption of this methodology, however, preceded even the initial industry forays at standardizing the loop ordering process. Now that such standards are in place for EDI, Ameritech has committed to implementing those standards within 120 days assuming

[34] Mickens Aff. at Schedule 19; Brooks Opposition at Attachment G.

the cooperation from other carriers that is always necessary in establishing an interface.[35] The Department views evidence of Ameritech's progress in fulfilling this commitment as fundamental to its demonstration under Section 271, and we will closely monitor both Ameritech's progress and the cooperation it is provided by competitors over the coming months.

4. Unbundled Switching and Combinations of Elements

In Section III.A. we discuss in detail our view of Ameritech's unbundled switching and shared transport offerings, including combinations thereof. We note here that, from an operational point of view, Ameritech is currently engaged in one of two planned trials of providing a combination of local switching with other network elements. Kocher Aff. ¶¶ 71-78. The results of these trials may provide important evidence of Ameritech's ability to provide unbundled local switching in combination with other network elements, in addition to the appropriate usage and billing information required by such combinations. Currently, however, Ameritech does not offer sufficiently detailed evidence, beyond the general discussion of internal testing in Kocher's affidavit, of internal or other testing to demonstrate its ability to provide local switching alone or in combination with other elements. See Kocher Aff. ¶¶ 47-70.

5. Maintenance and Repair

In addition to manual methods, Ameritech provides two electronic interfaces for performing maintenance and repair transactions. First, Ameritech provides the industry standard T1M1 interface for reporting access service trouble. Ameritech has used this interface with large interexchange carriers for two years and asserts that the same interface may be used for reporting

[35] Rogers Aff. ¶ 10.

POTS service troubles. In support of its assertion, Ameritech states that MCI has used the interface to report 189 troubles on Ameritech POTS lines since May, 1996. MCI partially refutes this claim, however, alleging that MCI "did not check the status of the trouble reports, obtain completions, or in any other way use the interface as it is intended to be used to report troubles for a CLEC's own local customers." Affidavit of Samuel King ¶ 148 ("King Aff."), attached to MCI Comments, Exhibit D.

In accordance with our view that smaller competitors require an alternative to expensive interfaces such as the T1M1,[36] Ameritech also provides a graphical user interface for reporting maintenance trouble. CCT has apparently tested and begun commercial use of the GUI, and Ameritech's pay phone subsidiary has, according to Ameritech, processed thousands of trouble reports with the GUI in the identical manner as a CLEC would. Rogers Aff. ¶ 93. Finally, Ameritech presented robust capacity figures for its T1M1 interface. Meixner Aff. at Schedules 21-22.

In contrast to the evidence presented for other processes, including the T1M1 interface, Ameritech fails to present details of the functionality or internal testing of the GUI for use in local services.[37] For example, although Ameritech asserts that CCT has performed carrier-to-carrier testing of the GUI, Ameritech provides neither results of such testing nor details of CCT's alleged commercial use. While evidence of high volume and successful use of the GUI by

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[36] USN, for example, testified that the T1M1 interface is currently too expensive to justify for its operations. MPSC Transcript, May 28, 1997 at 154-55.

[37] Meixner reviews internal test results of the T1M1 interface's capacity, using benchmark transactions created by Ameritech and Further Inspection, a software consulting firm. Meixner Aff. ¶¶ 41-42.

Ameritech Pay Phones may prove to be quite persuasive, Ameritech provides few details other than monthly use statistics. See Rogers Aff. ¶ 93. Without evidence of at least internal testing, and where available carrier-to-carrier testing and commercial use, Ameritech cannot demonstrate operation of these interfaces.

6. Billing

Ameritech provides daily usage data and wholesale bills to CLECs. The former enables CLECs to bill customers, the latter is Ameritech's bill for wholesale services to the CLEC. Ameritech appears to provide industry-standard EMR format usage files in a timely manner.[38] This usage data affects a CLEC's ability to answer customer inquires and obtain revenue for services provided, and thus such timely provisioning is competitively significant.

Ameritech has experienced difficulties, however, in providing wholesale bills in a timely manner. According to Schedule 25 of Mickens' affidavit, Ameritech was late in providing such bills 42.9% of the time in January, 100% of the time in February and March, and 91.7% of the time in April. See Mickens Aff. ¶ 111. Ameritech acknowledges its lack of performance in this category, and discusses in detail both the reasons for its lack of performance and the changes being made to remedy the situation. Mickens Aff. ¶¶ 112-113. The Department will look for improvement in this area in the coming months.

Finally, Ameritech has experienced problems coordinating order completion notifications transmitted to CLECs, with the suspension of Ameritech billing system activity, which should end upon completion of the customer's migration to a CLEC. The problem, discussed at length

[38] Mickens Aff. at Schedule 25. MCI asserts, however, that it continues to experience significant problems with Ameritech's EMR feeds. King Aff. ¶¶ 159-162.

in the Wisconsin and Illinois dockets, has caused double billing incidents, where both Ameritech and the CLEC bill the customer for service during a period. This is a serious, customer-affecting problem that Ameritech has acknowledged. Ameritech has asserted that, although billing system activity apparently continues after a completion notice is transmitted to the CLEC, solutions were put in place on May 12 that prevent the billing systems from mistakenly sending out bills after such notice.[39] Obviously as of Ameritech's filing date, nine days after these solutions were put in place and twenty-one days after the last reported performance data, it is too soon to tell whether the fixes implemented by Ameritech have eliminated the double billing problem.

7. Documentation

Although several CLECs have commented on the dramatic improvements in Ameritech's interface and ordering documentation, some note that further clarification is required, in particular with respect to "USOCs" and "FIDs," the codes that Ameritech uses to identify services and features.[40] These codes appear on the customer service records Ameritech provides CLECs. If a CLEC cannot accurately identify the corresponding services and features a customer currently receives, the CLEC may not be fully aware of service-affecting ramifications of assuming service obligations for the customer or be able to order services accurately. Ameritech has assured the Department that improvements in this area of documentation have been forthcoming, and we will reserve comment until CLECs have had an opportunity to take advantage of these improvements.

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[39] Rogers Aff. at Schedule 14.

[40] See, e.g., Affidavit of Wayne Charity ¶¶ 8-10, attached to LCI Comments, Exhibit C.

C. Missing Performance Measures

1. Actual installation intervals for resale

Ameritech currently measures and reports two installation measurements for its resold services. The first is installations outside of a six day interval, while the second is due dates not met. Mickens indicates that installations outside of interval is a measure that Ameritech has tracked in the past for its own retail customers, that Ameritech can therefore report a comparable measure for both resale and retail installations, and that the measure is an indication of network performance. Mickens Aff. ¶¶ 36-37. Mickens adds that an actual installation interval is meaningless because the measure is affected by the end-users' choice of due dates. Id.

The trouble with this position, as the MPSC has recognized, is that "[m]easuring rates of completion within a target period of time rather than determining actual average time to complete a task does not permit direct comparisons to Ameritech's retail performance." MPSC Consultation at 31. In other words, if 100% of Ameritech's retail customers receive service on day one, while 100% of the CLEC's customers do not receive their service until day five, then a report of installations outside of six days will show parity of performance, not revealing the discriminatory difference in performance between Ameritech and the CLEC.[41]

Obviously, it is unlikely that every Ameritech and CLEC customer will want service as soon as possible. Many subscribers will want service on a specified date that may be extended past the first available installation date. It is reasonable for these installations to be excluded from the count, so that the measure is an appropriate comparison of performance rather than a

[41] See Friduss Aff. ¶ 63 ("This 'raw' interval is as important, and perhaps more important, than the percentage of completions beyond a set objective.")

comparison of the respective desires of Ameritech's customers versus the CLEC's customers.[42] The MPSC agreed with this approach, stating that "performance must measure what is in Ameritech's control in order to help prevent attempts to waive the relevance of particular performance measurements. If an order completion date can be determined either by Ameritech or by the desires of the customer, the latter should not be included in Ameritech's performance measure." MPSC Consultation at 31.[43]

The Department is not committed to a particular method of obtaining the required information when an adequate substitute is available. Mickens states that, while Ameritech will not provide a measure of actual installation intervals,[44] it is willing to audit, upon request, its due dates offered to its retail units and the CLECs. Mickens Aff. ¶ 37. A commitment to audit in the future, however, does not present the information that is required to evaluate today whether Ameritech is providing nondiscriminatory service as required by the Act. Nor has Ameritech provided any information on how such an audit would be conducted, making it impossible to evaluate whether the audit proposal is, in fact, an adequate substitute for the actual measure. In

[42] The definition of the measure must make it clear which installations are being counted and which are being excluded so that all understand what is being measured.

[43]It would appear that Ameritech recognizes this; its current definition of installations outside of interval notes that "[t]his measure does not include customer requested due dates." Mickens Aff. at Schedule 5, Section 3, at 1.

[44]Ameritech's position on average installation intervals might be unfavorably compared to its position on measures for repair and maintenance where, after requests by both CLECs and regulators, Ameritech agreed to measure and report both average-time-to-repair in addition to its original proposed measure of out-of-service-over-24 hours. Mickens Aff. ¶ 32.

addition, Ameritech's suggested frequency of such an audit—every six months for the first year and annually thereafter[45]—appears too limited.

2. Installation interval for loops

Ameritech has proposed no measure of installation interval for unbundled network elements, specifically loops. This makes it impossible to discern from Ameritech's reports whether or not it is achieving the level of performance committed to in its contracts. The provisioning of unbundled loops does not have a direct analogy to any Ameritech retail function, so Ameritech points to the specific, "objective performance standards" contained in its contracts as the appropriate measure of non-discriminatory provisioning, asserting that these standards are "based on Ameritech's experience and consider the unique nature of each request for access to unbundled network elements." Mickens Aff. ¶ 24. Yet Ameritech does not provide in its application the information sufficient to measure whether these contractual intervals have been achieved.[46]

Ameritech's proposed measure of due dates not met, while an important measure on its own, does not capture the information necessary to determine installation intervals. Similar to the resale scenario above, it is conceivable, for example, that Ameritech might report only 10% due dates not met but this would not reveal that the "missed" due dates were all orders where the

[45] Mickens Aff. ¶ 37.

[46]Mickens's affidavit provides a more detailed analysis of the performance results for Brooks Fiber, a Michigan CLEC using Ameritech loops, Mickens Aff. ¶¶ 51-61, but this information is not reflected in the performance reports Ameritech has committed to provide on an ongoing basis. Moreover, as discussed above, Brooks has disputed Ameritech's measure of the results.

CLEC had requested the standard interval while the "met" due dates were all orders for which the customer had requested an extended installation.

3. Comparative Performance Information for UNEs

Unlike its report for resold services, Ameritech's performance report for unbundled network elements (UNEs) contains no information permitting a comparison between Ameritech and its competitors. While there may be fewer measures that can be compared in a UNE environment,[47] a number do exist. Ameritech has discussed some of them in the Mickens Affidavit, for instance where he compares the due dates not met for Brooks Fiber and for Ameritech retail. Mickens Aff. ¶ 51.[48] Ameritech's retail results for trouble report rate, receipt to restore, and out of service over 24 hours are included as comparable in its resale reports and there is no obvious reason why they could not be similarly reported on the unbundled loop reports.

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[47] But see MPSC Consultation at 31, "Although exact parity of operations may not exist on the retail and wholesale operations, instances which are substantially analogous should be utilized for purposes of comparison. For example, as was suggested by DOJ, 'the provisioning of an end-to-end combination of loop, switching, and transport elements is, in some cases, analogous to a BOC's retail POTS line. In such cases, the Department would normally expect a BOC to process an order in the same automated fashion that it processes retail POTS lines.'"

[48] Although Mickens claims that missed due dates for unbundled loops are not comparable to missed due dates for Ameritech retail POTS "because the provision of unbundled loops is fundamentally different from the provision of bundled local service", Mickens Aff. ¶ 51, this explanation goes to why the actual installation interval for unbundled loops cannot be compared to actual installation for retail POTS. The fundamental difference described is appropriately reflected in the differing installation intervals and not in the missed due dates measure.

4. Other Missing Measures

There are other performance measures which are discussed in the Friduss affidavit but are not apparent in Ameritech's proposed reporting plan. These include certain measures of ordering (service order accuracy and percent flow through, [49] Friduss Aff. ¶ 62), provisioning (held orders and provisioning accuracy, id. at ¶ 63), and billing (bill quality or accuracy, id. at ¶ 66). Also missing for UNEs are repeat reports, a critical measure of customer-affecting functionality. Id. at ¶ 64. Ameritech provides this measure for resale but does not do so for its unbundled loops performance reports.

5. Need for Specific and Clear Definitions

In order for performance reports to be meaningful and useful, the relevant measures must be specifically and clearly defined. Without such definition, the reports will be meaningless if not actually misleading to a CLEC or regulator. "[C]ycle-time performance measures are dependent on the specific definition of start and stop times, while reliability measures are dependent on the specific definition of what constitutes a failure." Friduss Aff. ¶ 23. The MPSC recognized the importance of this in its list of criteria: "A specific determination of how measurements should be made must be delineated. If orders received late in the day are treated as next day orders, this should be specified and performance of Ameritech's retail operations should be similarly measured." MPSC Consultation at 32. Before Ameritech's proposed performance measures can be considered sufficient to judge non-discrimination and detect post-entry backsliding, they must be specifically and clearly defined.

[49] Ameritech has provided some discussion of order flow-through in Rogers Aff. ¶¶ 37-41.

Ameritech has recognized the need for agreement on the definitions of tracked measures. As Mickens states, "any meaningful performance measurement analysis requires a common understanding of timing procedures." When "it became clear that Ameritech and an Illinois-based CLEC, Consolidated Communications Telecom of Illinois, Inc. ("CCT") were not measuring or reporting repair time in the same manner," Mickens Aff. ¶ 40, Ameritech and CCT met, isolated and discussed the differences between their measurements, and agreed upon a joint definition and process to use going forward.[50] Mickens describes these steps in detail in his affidavit. Id. It appears that the same process may still need to occur with regard to ordering and provisioning measurements, among others. See MPSC Consultation at 26 ("It has not been determined how some proposed standards will be measured. The primary example of this is the huge difference between the data provided by Brooks and the data provided by Ameritech in regard to assessing whether unbundled loops have been installed on time.") Ameritech's stated definition for service due dates reads only "The agreed-upon date when service order is due," Mickens Aff. at Attachment 5, Section 3, and does not detail Ameritech's specific measuring procedures such as counting orders received after 3 p.m. the next business day, and excluding weekends and holidays from the calculation. Nor does the stated definition make clear Ameritech's practice of measuring relative to due dates it has defined rather than those the CLECs had requested. See Section B.2.a., above. Regardless of which measure is more

[50] See generally Mickens Aff. ¶¶ 38-40; Illinois Commerce Commission, Investigation concerning Illinois Bell Telephone Company's compliance with Section 271(c) of the Telecommunications Act of 1996, Docket No. 96-0404, Supplemental Direct Testimony of Warren Mickens, at 8-10 (Apr. 4, 1997).

representative of performance, [51] this lack of clarity reduces the value of the performance measure.

In addition, Ameritech's definition of due dates not met, relating "the number of missed appointments to the total number of appointments in the reporting period" does not reveal that the measure includes only installations completed past due and excludes orders which are pending past due. Ameritech may have an appropriate reason for excluding pending orders from its due date calculation, and has, in fact, included an analysis of pending orders in the text of Mickens's affidavit,[52] but the lack of clarity in the definition of the measure may cause confusion.[53]

6. End Office Integration (EOI) Trunks

Ameritech provides testimony concerning its EOI trunk offers and associated wholesale support processes. According to Mayer's affidavit, to mitigate trunk blocking CLECs can request additional trunking to augment existing EOI trunk groups, they can request two-way trunks, and they can request trunks that directly connect Ameritech end offices to a CLEC switch.[54] In addition, Mayer recommends that CLECs establish points of interconnection (POI)

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[51] But see Friduss Aff. ¶ 23 (missed appointments "should be measured against the original due date; due date changes could only be considered when explicitly requested by the end user").

[52] See Mickens Aff. ¶¶ 102-103 (4,000 pending resale orders, 1,500 pending past due; 1,030 unbundled loop orders, 172 pending past due).

[53] See PSCW Second Order at 19: "Ameritech's measure of due dates met was inaccurate as it did not consider overdue orders still pending as having missed due dates. An analysis of due dates not met should include overdue pending orders as a due date not met."

[54] Mayer Aff. ¶ 36.

with each tandem in the LATA to provide alternate interconnection paths for when one trunk group is (temporarily) at capacity.

The Department commends Ameritech's efforts to provide effective wholesale support processes for EOI trunks. There is evidence to suggest, however, that Ameritech has not provided CLECs with sufficient ability to control EOI trunk blockage. In particular, TCG describes an effort lasting more than six months to resolve blocking problems in Chicago and Detroit.[55] It claims to have attempted to resolve the blocking problem through each of the alternatives described in the Mayer affidavit.[56]

The Department is also concerned that CLECs may not have access to the data needed to solve EOI blocking problems when the blocking occurs on the Ameritech side of the POI. Specifically, CLECs cannot identify which Ameritech end offices are candidates for EOI trunks without access to Ameritech network call flow data. Ameritech has this data, but to our knowledge it has not provided it to any CLEC, nor has it committed to do so. Without such information to identify the sources of blocking, it may be unreasonable to expect CLECs to propose costly network reconfigurations.[57]

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[55] TCG Comments at 4-8 and Pelletier Aff. ¶¶ 10-24.

[56] TCG has a POI at each of the three tandems in the Chicago LATA. However, it questions whether its NXXs are routed to alternative POI when the initial POI is blocked. TCG has also requested both two-way trunking and trunks between Ameritech end offices and the TCG switch. It maintains that Ameritech has refused to provide either of these facilities. TCG Comments at 5-8.

[57] Ameritech claims that CLEC competitors would be able to monitor Ameritech's performance using their own OSS data and Ameritech's public regulatory reports, Ameritech Brief at 91, but that argument appears inapplicable where CLECs do not have this information.